

REMARKS

The invention is a method of obtaining connection to a packet data network and a system. In accordance with the invention, a user 12 inputs a request to a first network 10 which requests that the user be authorized for connection to the packet data network 14 through a second work 16 with the connection being paid for by the first network making payment to the second network. The user request and an authorization of payment is transmitted from the first network 10 to the second network 16 to pay for user's access to the packet data network 14. A requirement for the payment to be made for the connection to the packet data network is the result of communications which first originate with the user request to the first network. See the first paragraph of the Summary of the Invention wherein the "purchase communications" are described. Network authentication information, which may be a unique random number RAND, a signed response RES, and a cipher key Kc, is used to grant the user authentication to obtain connection through the second network 16 to packet data network 14. The authentication information is transmitted from the first network 10 to the user 12 which informs the user that authentication to obtain connection to the packet data network 16 has been obtained. Furthermore, as illustrated in Fig. 2, the second network debits when the user roams in the second network from a stored value of service units maintained by the second network, which have been granted to the user, a number of consumed units which are identified in each request for consumption of at least one service unit until the number of consumed service units equals the number of granted service units.

Prior to the invention, as described in the specification under the "Description of the Prior Art", a problem existed when a user wished to obtain service from a packet data network while remaining anonymous or where there was no roaming agreement (unlike Rai et al) permitting the user to be billed while roaming from the user's home network to the second network and through which the user is connected to the packet data network. This situation required alternative billing arrangements to which the invention is addressed. See the first full paragraph on page 2 of the specification.

Claims 1-3, 5-18, 21-30, 32, 34 and 35 stand rejected under 35 U.S.C. §102(e) as being unpatentable over United States Patent 6,577,643 (Rai et al.). This final rejection is traversed for the following reasons. Each of independent claims 1, 21, 22, 24 and 26 substantively recites a method of obtaining connection by a user through a first network and through a second network to a packet data network or a system with the connection being paid for by the first network making payment to the second network and a requirement for the payment to be made for the connection to the packet data network is the result of communications which first originate with the user request to the first network. In other words payment is not the result of a preexisting relationship regarding payment such as a roaming agreement. The claims as amended positively exclude any preexisting payment relationship since the payment for the connection by a user through a first network and through a second network is by the first network making payment to the second network with a requirement for the payment to be made for the connection to the packet data network being the result of communications which first originate with the user

request to the first network. This language positively excludes a preexisting arrangement to make payment such as the existence of the roaming agreement.

Rai et al disclose an architecture which is fundamentally different than that of the present invention in that the roaming of the roaming end system 60 to the foreign wireless service provider 62 in Fig. 3 is subject to a service agreement. See column 8, lines 41-61, where it is described that the roaming end system is subject to a contractual relationship between the foreign wireless service provider 62 and the home service wireless provider 70. Since there is a preexisting contractual relationship between the home network and the foreign network, there is no requirement for the payment to be made for the connection to the packet data network as the result of communications which first originate with the user request to the first network as positively recited in all of the independent claims. In fact, the prior contractual relationship makes the transmission of the authorization by the present invention totally unnecessary. Moreover, the reason the present invention utilizes the authorization of payment is that in the prior art there was a need for a payment mechanism to obtain information from packet data networks requiring alternative billing arrangements, i.e. arrangements that do not involve a prior contractual relationship between the home network and the network in which the mobile equipment is roaming as specifically taught by Rai et al.

Moreover, column 25, lines 42-46, of Rai et al recite "[t]o provide service to roaming end systems, the foreign network and the home network are authenticated to each other for accounting and billing purposes using the Radius R protocol for authentication and configuration...authentication is performed at the time of end system registration". This does not describe the claimed authorization of payment

as recited in the independent claims. Instead, this is the mechanism of how the prior contractual relationship is actually executed between the home and foreign networks to provide an account of the charge for the service provider.

Rai et al goes on to describe in columns 27-31 the details of how the accounting is performed. Nowhere is there any reference to any transmission of payment to the foreign network by the home network since Rai et al's in place contractual relationship, as implemented by the aforementioned accounting procedures, makes a transmission of payment totally unnecessary. Moreover, the network of the type described by Rai et al does not have the problems solved by the present invention regarding the prior art described in the specification which addresses the situation where the user wishes to remain anonymous or when there is no roaming agreement which is the very situation not present in Rai et al where there is a roaming agreement in place.

Claims 2 and 3 further limit claim 1 reciting that the user request includes a quantification of connectivity which the user requests to the packet data network and the quantification comprises at least one service unit with the service unit being encoded with a random number. This subject matter is not taught by Rai et al. The Examiner cites column 27, line 44, through column 30, line 46, and column 6, lines 26-35. However, while the cited portions of Rai et al do pertain to accounting, they do not suggest to a person of ordinary skill in the art the subject matter of claims 2 and 3. As has been stated above, the contractual agreement between the home network and the foreign wireless service provider in Rai et al makes the subject matter of claims 2 and 3 something that would not be utilized and it is submitted that it is not disclosed. The Examiner's reliance on column 30, lines 45-

56, is a description of accounting packets which are not a quantification of connectivity which the user requests to the packet data network. Moreover, the disclosure in lines 26-35 of column 6 also does not disclose the aforementioned subject matter.

Claim 5 further limits claim 1 in reciting that the authentication information comprises a shared key which may be used to create secure communications between the user and the packet data network. The Examiner's reference to column 26, lines 4-10, pertains to shared secrets between the home network and the foreign network which is not the same as what is recited in claim 5 pertaining to secure communications between the user and the packet data network.

Claim 6 further limits claim 5 in defining the nature of the authentication information. Claim 6 is patentable for the same reasons set forth above with respect to claim 5.

Claims 7, 9 and 11 are patentable for the same reasons set forth above with respect to claim 5.

Claim 10 further limits claim 5 in reciting the second network computes a subscriber identification module SIM comprising a number of service units with each service unit comprising a different random access number uniquely identifying each service unit, a signed response and a shared key Kc. As has been stated above, Rai et al do not disclose the concept of service units in view of the contractual billing arrangement between the home network and the foreign network.

Claim 12 is patentable for the same reasons set forth above with respect to claim 10.

Claims 13-17 further limit claims 1-5 in reciting that "the inputting of the user request to the first network, the transmitting of the user request and an authorization of payment to the second network, and the transmitting of the authentication network from the second network to the first network and to the user are by secure communications". Claims 13-17 are patentable for the reasons that Rai et al do not anticipate claims 1-3 and 5.

Claim 18 further limits claim 3 in reciting "after the user is informed that authentication to obtain connection to the packet data network has been obtained, the user transmits to the second network at least one request for consumption of at least one service unit comprising a random number RAND and a signed response SRES; the second network compares the random number RAND and signed response SRES of each request for consumption of at least one service unit received from the user with stored random numbers RAND and signed responses SRES to determine if a match exists; and if a match exists, the second network permits data packets to pass through the second network between the user and the packet network". As pointed out above, Rai et al do not disclose the utilization of service units let alone the detailed transmissions recited in claim 18.

Claim 23 further limits claim 22 in reciting the number of consumed service units are identified in each request for consumption of at least one service unit until the number of consumed service units equals a number of granted units. As has been pointed out above, Rai et al do not pertain to service units and therefore, do not anticipate claim 23.

Claim 25 limits claim 24 in reciting the number of consumed service units are identified in each request for consumption of at least one service unit until the

number of consumed service units equals the number of granted units. Claim 25 is patentable for the same reasons set forth with respect to claim 23.

Claim 27 further limits claim 26 in reciting the user request includes a quantification of connectivity which the user requests to the packet data network; and the authorization of payment quantifies an amount of payment that the first network will pay to the second network for connection of the user to the packet data network when the user roams in the second network; and payment for the connection of the user while roaming in the second network for connection to the packet data network is charged against the authorization. As has been pointed out above, Rai et al do not disclose the quantification of connectivity which the user requests to the packet data network and does not disclose the authorization of payment let alone quantifying an amount of payment that the first network will pay to the second network for connection of the user to the packet data network when the user roams in the first network; and payment for the connection of the user while roaming in the second network for connection to the packet data network is charged against the authorization.

Claim 28 further limits claim 26 in reciting the authentication information comprises a shared key which may be used to create secure communications between the user and the packet data network. Claim 28 is patentable for the same reasons set forth above with respect to claim 5.

Claim 29 limits claim 28 in reciting the authentication information is a subscriber identification module SIM...and the shared key Kc. Claim 29 is patentable for the same reasons set forth above with respect to claim 6.

Claim 30 further limits claim 26 in reciting the user request includes a quantification of connectivity which the user requests to the packet data network; and the quantification comprises at least one service unit with each service unit being encoded with a random number. As has been pointed out above, Rai et al do not disclose quantification of service units let alone each service unit being encoded with a random number.

Claim 32 further limits claim 27 in reciting that the quantification comprises at least one service unit with each service unit being encoded with a random number. Claim 32 is patentable for the same reasons set forth above with respect to claim 30.

Claim 34 further limits claim 26 in the same manner as claim 18 limits claim 3. Claim 34 is patentable for the same reasons set forth above with respect to claim 18.

Claim 35 further limits claim 27 in the same manner that claim 34 further limits claim 26. Claim 35 is patentable for the same reasons set forth above with respect to claim 34.

Claims 4, 19, 20, 31 and 33 stand rejected under 35 U.S.C. §103 as being unpatentable over Rai in view of United States Patent 5,930,777 (Barber). These grounds of rejections are traversed for the same reasons set forth in response to traversing the first Office Action rejection.

Second 5 of the Office Action which is captioned "Response to Arguments" raises points which are moot in view of the amendments to the independent claims which exclude the relationship of a roaming agreement which is the basis for the Rai et al. system.

In view of the foregoing amendments and remarks, it is submitted that each of the claims in the application is in connection for allowance. Accordingly, early allowance thereof is respectfully requested.

To the extent necessary, Applicants petition for an extension of time under 37 C.F.R. §1.136. Please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, to Deposit Account No. 01-2135 (0173.37066X00) and please credit any excess fees to such Deposit Account.

Respectfully submitted,

ANTONELLI, TERRY, STOUT & KRAUS, LLP

A handwritten signature in black ink, appearing to read "Donald E. Stout", is written over a horizontal line.

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Attachments

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